Chelmsford Public Schools
Administrative Offices

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May 29, 2000

RECEIVED

BERNARD DINATALE
EXECUTIVE DIRECTOR OF INFORMATION
AND TECHNOLOGY

Federal Communications Commission
Office of the Secretary
445 12th Street SW, Room TW-A325
Washington, DC 20554

JUN - 5 2000

FCC MAIL ROOM

In the matter of: Request for Review by the Chelmsford Public Schools of Decision of Universal Service Administrator

Reference: FCC Docket Nos. 97-21 and 96-45

Re: Billed Entity Number: 120395
Application Number: 122372

Funding Request Number: 176408
Funding Year: 1999-2000

Dear Sirs:

This letter serves as an official appeal to the Universal Service Administrator's ruling on the appeal of the above referenced application for funding of telephone system for a renovated school building.

This project is divided into three parts:

1. Standard voice PBX/Centrex telephone distribution switching system (TeleCenter 21). The cost of this equipment is **$28,018** with no end user equipment. See attached documentation. This is eligible under the Eligible Services List, paragraphs 458 and 459.

2. Infrastructure materials such as wiring, plates, and conduit - cost was **$38, 964.**

3. Labor for installation of infrastructure and PBX - cost **$38,962.**

This is the cost we paid for the telephone system, in addition, we have paid an additional sum to produce an integrated video system. The total cost of the project was $180,000. This integrated video system is non-eligible and was never included in the Form 471 application.

We are at a loss to understand the denial of this service and request through the appeals process this decision be reversed.

Sincerely,

Bernard DiNatale
Executive Director of
Information and Technology

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Enclosures

190 RICHARDSON ROAD   **NORTH CHELMSFORD, MA 01863**   **(978) 251-5100**

SIGNET INTEGRATED COMMUNICATION SYSTEM (RAULAND) FEATURES:

Based on our evaluation, we feel the Rauland-Borg integrated communication system solution will enhance classroom safety, security by offering the following features

Enhanced 911

- Automatic Location Identification
- Individual School Name
- Street Address and City
- Building Unit Identifier
- Call Back Telephone Number
- Main Entry Wall Display – '911 called from 3454, go to second floor'
- Disconnected calls are automatically re-routed back to that room/extension

Integrated Intercom/Public Address Functions

- Always An Answer – automatically routes important communications to the free device when the classroom telephone or speaker is busy
- Two-Way Group Instruction Via the Classroom Speaker
- Emergency/Normal Call-Ins
- Privacy Tone Speaker
- Intercom/Handset Conversion
- Programmable Buttons on Classroom Telephones for Emergency Calls, Nurse, etc.
- Page Exclusion – automatically mutes speakers associated with the telephone to avoid feedback
- Telephone/Toll Restriction
- Built-in diagnostics for remote troubleshooting and maintenance
- Multiple memory configurations enable the system to operate differently during periods of the day and/or week (ex: day care program, night classes, etc.)
- Off Premise Security Monitoring (can listen in on individual speakers to hear intruders)
- Personal Identification Numbers allow selected personnel to perform functions from restricted telephones (paging announcements)
- Emergency "All Call"

- [illegible]

- [illegible] Service - night ringing through public address speakers

- Call Forwarding

- Conference Calling

- Personal and System Wide Repertory Dialing

- Student Phone – allows students controlled access to outside lines (will limit the length of call and the number of times that number is dialed)

FEATURES

- Provides Sixteen (16) Simultaneous, Global Telephone Conversation Paths
- Also Provides Up to Three (3) Simultaneous, Global, Amplified Voice Audio Channels
- Includes Priority Paging Microphone
- Multiple Channel Audio Program Distribution
- Built-In Full Feature Master Clock
- Non-Volatile User-Configurable Memory
- Time-Based System Reconfiguration
- Advanced Microcomputer Design
- Built-In Diagnostics
- Completely Self-Contained Electronics

SPECIFICATIONS

Power Required: 105 - 130V AC @ 3.0 amps

Power Supply Output: 12V DC @ 4.0 amps, 5V DC @ 2.0 amps

Environmental Parameters:
　　Temperature: 40°F (0°C) to 90°F (32°C)
　　Relative Humidity: 0 to 85%

System Capacity:
　　Telephone Ports: Twelve (12) (telephones, trunks, or both)
　　Room Stations: 256 (speakers, call switches, telephones - in any combination)

Audio Channels:
　　Telephone Linkage: Sixteen (16) global telephone links
　　Intercom/Paging Channels: (One [1] standard, expandable to three [3] global channels

Intercom Amplifier:
　　System Capacity: One (1) amplifier standard, expandable to three (3) amplifiers
　　Power Output: Twelve (12) watts @ 25V rms

Controls: VOX or PTT

Audio Inputs: Four (4) line level inputs (audio program sources) One (1) microphone input (Lo-Z)

Dial Registers: Two (2) registers standard, expandable to six (6) registers

Master Clock Capacity: 255 events
　　Eight (8) Zone Relays
　　Four (4) Schedules
　　Sixteen (16) Holidays
　　Eight (8) Time Zones (independent of paging zones)
　　Corrects all Rauland digital and analog secondary clocks

Wiring Requirements:
　　Administrative Telephones: Twisted pair
　　Digital Display (Data): Shielded pair
　　Classrooms: TC2114 - Four (4) conductors (two [2] twisted pairs or three [3] conductor shielded cables) TC2113 - One (1) shielded pair (Includes speaker, call switches, and telephone)

Field Wire Terminations: All field wiring terminates on 25-pair Telco connectors

Mounting: Mounts in EIA standard 19" equipment rack or with WM2100 Wall-Mounting Kit; mounts directly to wall

Additional Data: Accommodates 2, 3 or 4 digit dialing
　　Twelve (12) individually addressable digital displays
　　Two (2) RS-232C serial data ports
　　System configuration/programming
　　System diagnostics (on or off site)
　　System activity logging

Dimensions: 19" (48.3 cm) wide, 14" (35.6 cm) high, 11" (27.9 cm) deep

Shipping Weight: 20 lbs. (9.1 kg)

Associated Equipment: TC2105 - Expander Chassis
　　TC2106 - Expander Power Supply
　　TC2113/TC2114 - Station Line Cards
　　TC2120 - Relay Line Card
　　TC2150 - Master Station Module
　　TC2161 - Intercom Amplifier
　　TC4180 Series - Trunk Interface Equipment
　　TC4190 - Dual-Dial Register Module
　　WM2100 - Wall-Mount Adapter Kit
　　Rauland DAX and FAX Series Amplifiers
　　Rauland Fireplex™ Fire Alarm System
　　Rauland Personal Alert System

Specifications subject to change without notice.

RAULAND-BORG CORPORATION

3450 West Oakton Street, Skokie, Illinois 60076-2958 • Tel: (847) 679-0900 • FAX: (847) 679-0625

In Canada: RAULAND-BORG (CANADA) INC • 6535 Millcreek Drive, Unit 5, Mississauga, Ontario, Canada L5N 2M2 • (905) 821-2225 • FAX (905) 821-6325

FEATURES

* Provides Additional Power for Applications Requiring Multiple Intercom Amplifiers

* Provides Solid-State Reliability

* Mounts Conveniently in TC2100 Central Switching Exchange

* Modular Connectors for Easy Installation

SPECIFICATIONS

Output Voltage: 12V DC

Output Current: 6.0 amps

Power Requirements: 105V AC to 130V AC @ 3.0 amps

Dimensions: 6" (15.2 cm) wide, 3" (7.6 cm) high, 9" (22.9 cm) deep

Mounting: Dedicated Slot in TC2100 Central Switching Exchange

Shipping Weight : 4 lbs. (1.8 kg)

Associated Equipment: TC2100 Central Switching Exchange
TC2161 Intercom Amplifier

DESCRIPTION

The Rauland TC2106 Expander Power Supply provides additional DC power for Telecenter® System 21 applications requiring more than one TC2161 Intercom Amplifier.

The TC2106 provides 12V DC @ 6.0 amps. The output voltage is regulated to ensure that there will be no hum on the intercom audio.

The TC2106 mounts in an empty slot provided in the TC2100 Central Switching Exchange. Modular connectors make for quick, convenient installation.

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FEATURES

- **Accommodates Up to 176 Room Stations on Up to Eleven (11) Station Line Cards (TC2113 or TC2114)**

- **Provides Secure Module Support**

- **Provides Convenient Front Loading of TC2113 or TC2114 Station Line Cards**

- **Mounts in Standard 19" Equipment Rack or Can Be Wall-Mounted**

SPECIFICATIONS

Capacity: Eleven (11) Station Line Cards (TC2113 or TC2114). TC2120 Relay Line Cards may be attached to each Station Line Card

Dimensions: 19" (48.3 cm) wide, 14" (35.6 cm) high, 11" (27.9 cm) deep

Mounting: Mounts in EIA standard 19" equipment rack or with WM2100 wall-mounting kit, mounts directly to wall

Shipping Weight: 13.5 lbs. (6.2 kg)

Associated Equipment: TC2100 - Central Switching Exchange
TC2106 - Expander Power Supply
TC2113/TC2114 - Station Line Cards
TC2120 - Relay Line Card
WM2100 - Wall-Mount Adaptor Kit

DESCRIPTION

The Rauland TC2105 SLC Expander Chassis provides mounting for up to eleven (11) TC2113 or TC2114 Station Line Cards (SLC's) in a Telecenter* System 21. The unit is required when the SLC capacity of the TC2100 (5 cards/80 classrooms) is exceeded. The SLC (TC2113 or TC2114) will also accommodate the TC2120 Relay Line Card for each of the eleven SLC cards. No additional space is required in the mounting chassis.

The TC2105 SLC Expander Chassis provides secure mounting support for the Station Line Cards. The modules are conveniently inserted and removed from the front of the unit. This makes for easy inspection and/or servicing of any individual module without requiring the removal of other modules or disruption of their operation.
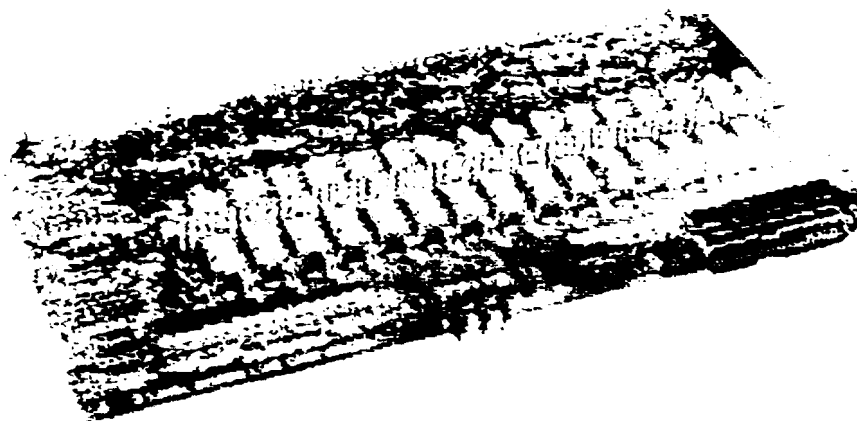
The TC2105 may be mounted in an EIA standard 19" equipment rack or it may be mounted directly on a wall or backplane using the WM2100 Wall-Mount Adaptor Kit.

FEATURES

- Provides Switching and Termination for 16 Room Stations
- Supports Speakers, Call Switches and a Telephone for Each Room Station
- Mounts Conveniently in TC2100 Central Switching Exchange or in TC2105 SLC Expander Chassis

- Equipped with a Standard 25-Pair Telco Connector for all Field Wire Terminations
- Provides Mounting for TC2120 Relay Line Card
- Provides Access to 16 Global Telephone Communication Paths
- Provides Access to All Audio channels When Equipped with TC2120 Relay Line Card

SPECIFICATIONS

Capacity: Sixteen (16) lines (room stations)
Maximum Audio Load: Single Port: 10 watt
                 All Ports: 25 watts
Field Wiring: 3 Conductors Each Position: Two conductor shielded cable minimum
Dimensions: 12.75 (32.4 cm) wide, 7" (17.3 cm) deep
Mounting: TC2100 Central Switching Exchange or TC2105 SLC Expander Chassis

Shipping Weight: 1.0 lbs. (0.5 kg)
Associated Equipment: TC2100—Central Switching Exchange
                 TC2105—SLC Expander Chassis
                 TC2120—Relay Line Card
                 CRT4—Staff Telephone
                 TC4312—Single Line Telephone

> **NOTE:** THE TC2114 AND TC2113 STATION LINE CARDS MAY NOT BE MIXED IN A SINGLE SYSTEM.

DESCRIPTION

The TC2113 Station Line Card - Three (3) Conductor (SLC3) provides termination and switching for sixteen (16) room stations in a Telecenter* System 21 communications system. Each station can consist of: a speaker, call switches (Normal, Emergency, Privacy), and audio program select in any combination, and a staff telephone (dialing or non-dialing).

If multi-channel audio is required, the TC2120 Relay Line Card may be added. The TC2120 expands the audio channel capacity of the card from one to three.

The TC2113 includes a 25-pair Telco connector for all field wiring. This is designed for use with standard telephone punch blocks on distribution frames. Conveniently located on the rear of the card, the connector allows for easy removal and insertion of the module for inspection and servicing.

The TC2113 mounts in vertical slots in the TC2100 Central Switching Exchange or in the TC2105 SLC Expander Chassis. Up to five (5) TC2113's may be mounted in the TC2100. An additional eleven (11) TC2113's may be mounted in the TC2105.

FEATURES

- Provides Switching and Termination for 16 Room Stations
- Supports Speakers, Call Switches and a Telephone for Each Room Station
- Mounts Conveniently in TC2100 Central Switching Exchange or in TC2105 SLC Expander Chassis

- Equipped with a Standard 25-Pair Telco Connector for all Field Wire Terminations
- Provides Mounting for TC2120 Relay Line Card
- Provides Access to 16 Global Telephone Communication Paths
- Provides Access to All Audio channels When Equipped with TC2120 Relay Line Card

SPECIFICATIONS

Capacity: Sixteen (16) lines (room stations)

Maximum Audio Load: Single Port: 10 watt
All Ports: 25 watts

Field Wiring: 4 Conductors Each Position: (Two [2] twisted pair or three [3] conductor shielded cable) minimum

Dimensions: 12.75" (32.4 cm) wide, 7" (17.8 cm) deep

Mounting: TC2100 Central Switching Exchange or TC2105 SLC Expander Chassis

Shipping Weight: 1.0 lbs. (0.5 kg)

Associated Equipment: TC2100—Central Switching Exchange
TC2105—SLC Expander Chassis
TC2120—Relay Line Card
CRT4—Staff Telephone
TC4312—Single Line Telephone

> **NOTE:** THE TC2114 AND TC2113 STATION LINE CARDS MAY NOT BE MIXED IN A SINGLE SYSTEM.

DESCRIPTION

The TC2114 Station Line Card - Four (4) Conductor (SLC4) provides termination and switching for sixteen (16) room stations in a Telecenter® System 21 communications system. Each station can consist of; a speaker, call switches (Normal, Emergency, Privacy), and audio program select in any combination, and a staff telephone (dialing or non-dialing).

If multi-channel audio is required, the TC2120 Relay Line Card may be added. The TC2120 expands the audio channel capacity of the card from one to three.

The TC2114 includes two (2) 25-pair Telco connectors for all field wiring. These are designed for use with standard telephone punch blocks on distribution frames. Conveniently located on the rear of the card, the connectors allow for easy removal and insertion of the module for inspection and servicing.

The TC2114 mounts in vertical slots in the TC2100 Central Switching Exchange or in the TC2105 SLC Expander Chassis. Up to five (5) TC2114's may be mounted in the TC2100. An additional eleven (11) TC2114's may be mounted in the TC2105.

FEATURES

- Provides Four Telephone Ports
- Accommodates Administrative Telephones, C.O. Trunk Cards, or Tie Line Cards
- Provides Access to Sixteen Global Telephone Links
- Provides 12V or 48V Service

- Modular Plug-In Card for Easy Removal and Service
- Transformer Isolated Circuits
- Balanced Two-Wire Transmission
- Accommodates Any Standard Single Line or Feature Telephone

SPECIFICATIONS

Capacity: Four (4) telephone ports; ports may be configured as any combination of Administrative Telephone Line ports, or with appropriate hardware, C.O. Trunk Ports or Tie Line Ports (two-wire audio, E & M signaling)

On-Hook Voltage: 12V DC standard
48V DC (with optional power supply)

Loop Current: 12V DC lines - 30 mA typical
48V DC lines - 40 mA typical

Ring Voltage: 90V DC

Ring Current: 10 mA

Dimensions: 2.25" (5.7 cm) wide, 6.25" (15.9 cm) deep

Mounting: Mounts in directly on SAC card of TC2100 Central Switching Exchange

Shipping Weight: 0.25 lbs. (0.1 kg)

Associated Equipment: TC2100 Central Switching Exchange
TC2148 48V DC Power Supply
TC4180 Series Trunk Interface Equipment

DESCRIPTION

The Rauland TC2150 Master Station Module provides for four (4) generic telephone ports in Telecenter System 21 communications systems. The generic telephone ports may be configured for use as Administrative Telephones, for direct connection to an EKSU or PABX trunk port, for connection via an E & M Tie Line Card to a separate telephone system, or for connection via a trunk card to a central office trunk line. The basic TC2100 Central Switching Exchange is equipped with a single TC2150 standard. Up to two (2) additional modules may be added to the system providing a maximum capacity of up to twelve (12) standard telephone ports.

The TC2150 directly accommodates the connection of standard DTMF dialing telephone instruments to the system. The TC2150 provides all sensing, switching and logic for the connection of each of its telephones to any of the Telecenter System 21's sixteen (16) globally available telephone links. The TC2150 provides 12V DC on-hook voltage standard. 48V DC on-hook voltage may be provided using an optional power supply. The TC2150 provides standard 90V AC ring signal and two-wire balanced audio transmission.

Using an E & M Tie Line Card, the TC2150 can support standard E & M signaling (two-wire audio/Type I, II, III and V signaling).

Using a Trunk Card, the TC2150 permits the connection of the Telecenter System 21 directly to the Public Switched Telephone Network.

The TC2150's mount directly on the SAC Card of the TC2100 Central Switching Exchange. Connections to field devices are via a standard 25-pair Telco connector located on the rear of the SAC Card. The TC2150 is completely modular to permit easy removal and insertion of the module for inspection and servicing.